

INCH-POUND

MIL-DTL-3786/35F

26 March 2003

SUPERSEDING

MIL-S-3786/35E

28 September 1993

DETAIL SPECIFICATION SHEET

SWITCH, ROTARY, CLOSED CONSTRUCTION, EXPLOSION PROOF, FLUX SEAL AND NON-FLUX SEAL, .200 AMPERE, STYLE SR35

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and the issue of the following specification listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation: MIL-DTL-3786.

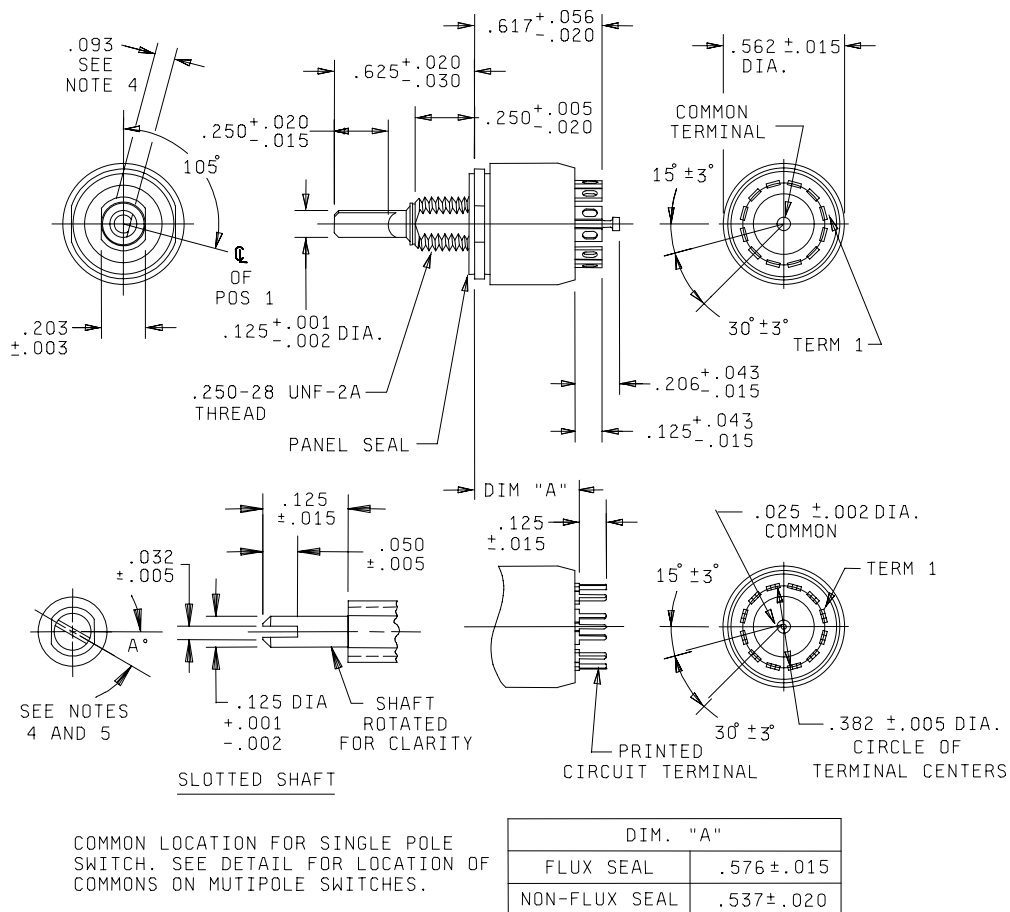
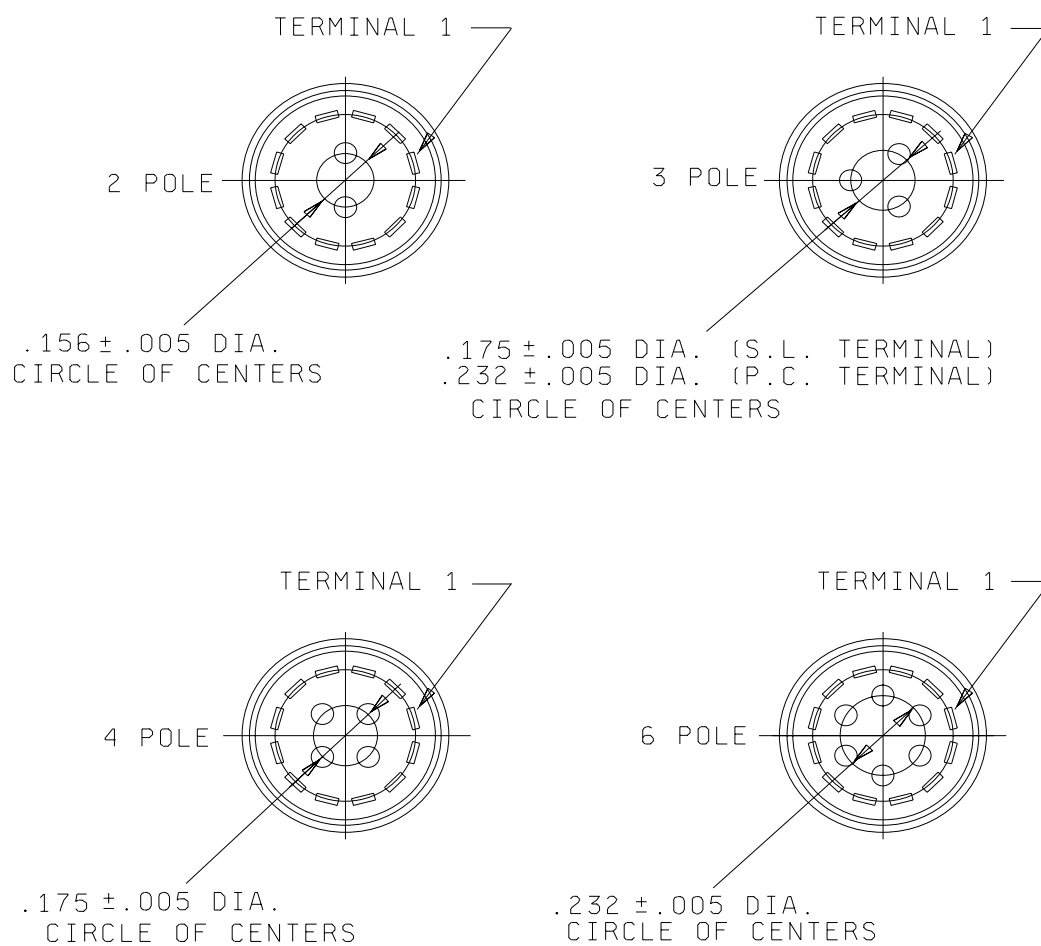


FIGURE 1. Switch style SR35.

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TERMINAL CONFIGURATION VIEWED FROM REAR

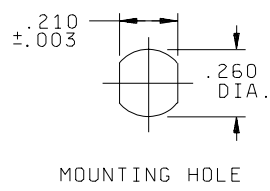
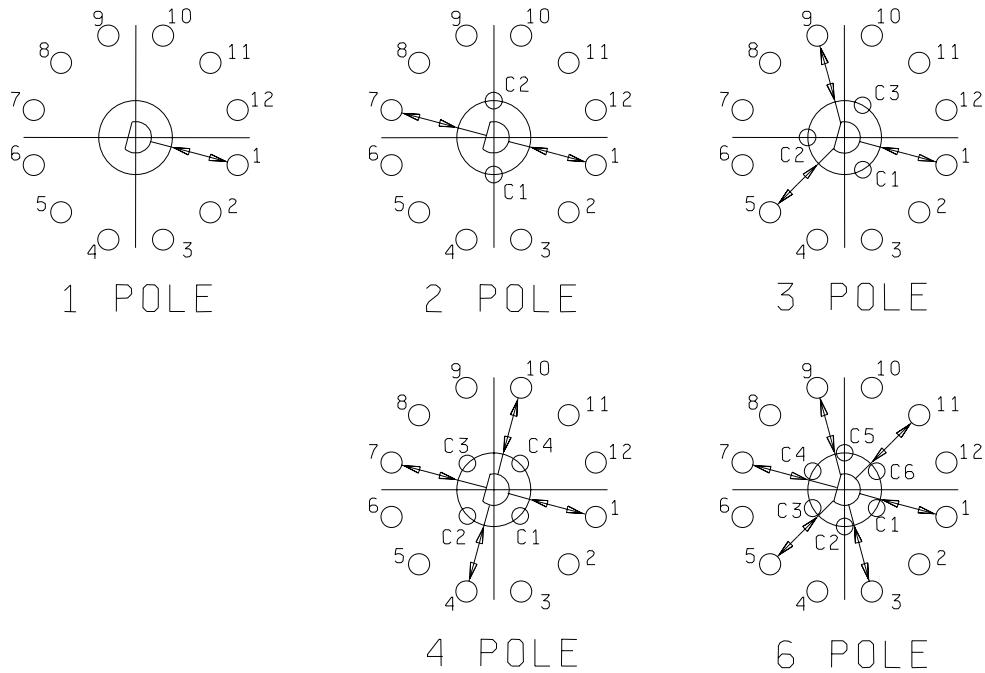
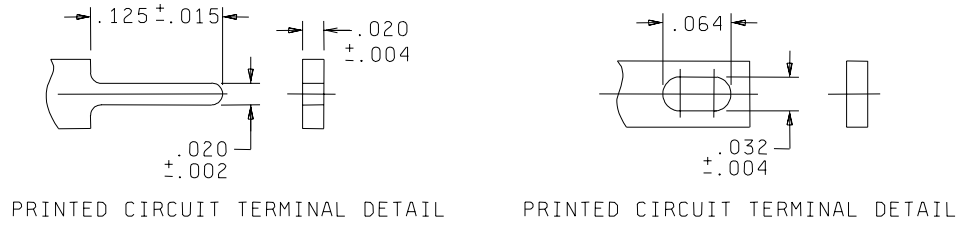


FIGURE 1. Switch style SR35 - Continued.

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CIRCUIT DIAGRAM

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .005$ (.13 mm) and $\pm 3^\circ$ on angles (noncumulative).
4. Shaft flat angle A° is the angle between a line through the center of the shaft perpendicular to the mounting bushing flats and another line through the center of the shaft and perpendicular to the shaft flat with switch in position number one. For switches with a slotted shaft, the slot is in line with the point of contact for pole number one.
5. Position number one and terminal number one coincide.

FIGURE 1. Switch style SR35 - Continued.

REQUIREMENTS

Dimensions and configuration: See figure.

Angle of throw: 30°.

Construction styles: Symbols F, J, and K .

Insulation: Symbol P (plastic).

Mounting hardware: Each switch shall be supplied with one corrosion-resistant hexagon, .089 ±.010-inch thick by .375 inch across the flats and one internal-tooth lock washer, .396/.408 diameter.

Moisture resistance: Insulation resistance measured immediately after conclusion of the moisture resistance test and while the switches are still in the humidity chamber, shall be greater than 100 megohms. At the end of the drying period, the insulation resistance shall be not less than 5,000 megohms.

Low level: Applicable when specified in the Part or Identifying Number (PIN).

Shaft grounding: Applicable when specified in the PIN.

Temperature-life characteristic: B (25,000 cycles) (-65°C and +85°C).

Vibration grade: 3 (10 to 2,000 Hz).

Shock symbol: B (high and medium impact) .

Altitude: C (70,000 ft).

Terminal strength (pull): A force of 1.5 pounds shall be applied to the terminals.

Terminal markings: Switches may be marked with terminal numbers on side of switch.

Stop strength: Stops shall withstand a force of 7.5 pound-inches.

Flux seal: Applicable when specified in Part or Identifying Number (PIN).

Rotational torque: The torque for shaft rotation shall be within the limits specified in table I.

TABLE I. Rotational-torque limits.

Temperature	Torque (lb-in)	
	Minimum	Maximum
Room	.5	1.5
Minimum	.5	2.0

Life (rotational): The test loads for the applicable circuit conditions shall be as specified in table II. Each of the loads, specified for the applicable environmental condition, shall be switched by at least one rotor contact of the switch.

Dielectric withstanding voltage: The magnitude of test voltage for the dielectric withstanding shall be 600 volts, alternating current (ac) atmospheric pressure, and 250 volts ac at reduced barometric pressure.

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TABLE II. Electrical loads.

Environmental condition	Lamp load (tungsten)		Inductive load (140 millihenries \pm 20%)		Resistive load	
	Milliamperes	Volts, dc	Milliamperes	Volts, dc	Milliamperes	Volts
At atmospheric pressure	100	28	30	28	200	28 dc
					75	115 V rms 60 Hz
At reduced barometric pressure	---	---	---	---	200	28 dc
					75	115 V rms 60 Hz

Test procedure on lamp load at atmospheric pressure:

Test procedure on lamp load at atmospheric pressure shall be as follows:

- Test potential and load. One pole on each eight switches to be tested, four at atmospheric and four at reduced barometric pressure, shall be energized by the specified lamp load. A common terminal and one selected terminal shall be arranged to be "on" once per cycle. Adjacent terminals shall not be energized. Suitable means shall be provided to indicate when contact have failed to make and break.
- Cycling and cycle rate. Ten cycles per minute. At the option of the supplier, cycling may be interrupted, periodically, after each 5,000 cycles of operation.

Ordering data: Acquisition documents should specify the following:

- Title, number, and date of this specification sheet, and the military Part or Identifying Number (PIN) as listed in table III, example A, or tables IV, V, and VI, example B.
- For switches not listed in table III, acquisition shall be in accordance with the ordering data of MIL-S-3786 (for switches covered by specification sheets).

Military PIN: The PIN shall be assigned by using example A, which consists of a dash number from table III. If the desired characteristics are not defined, the PIN shall be assigned by using the code letters from tables IV, V, and VI as described in example B illustrated below:

Example A: Non-flux sealed switches:

	<u>M3786/35-</u>	<u>001</u>	<u>T</u>	<u>G</u>	<u>L</u>
Switching characteristics (see table III)	_____				
Add the letter "T" when a slotted shaft is required	_____				
Add the letter "G" if positive shaft grounding is required	_____				
Add the letter "L" for low level requirement	_____				

PIN M3786/35-001TGL identifies a nonflux-sealed rotary switch of construction style F, 30° angle of throw, one pole per deck, 2 through 12 positions per pole, adjustable stops, solder lug termination, nonshorting switching characteristics, slotted shaft with low level capabilities and a grounded shaft.

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Example B: Flux sealed switches:

M3786/35-	A	G	AF
Switching characteristics and type of stops (see table IV) _____			
Type construction, low level capability, shaft grounding, temperature life characteristic, and shock type (see table V) _____			
Angle of throw, poles per deck, and number of positions per pole (see table VI) _____			

PIN M3786/35-AGAF identifies a rotary switch with fixed stops, nonshorting switching characteristics, a flattened shaft, printed circuit terminals, that is explosion proof, flux proof, closed construction, without sealed shaft and panel seal, 30° angle of throw, 1 pole per deck, and 7 positions per pole and has low level switching capabilities with a grounded shaft.

TABLE III. Switching characteristics and PIN's for type F construction.

PIN M3786/35-	Number of poles	Number of positions per pole	Type of stops	Termination	Switching Characteristics (S or NS)
001	1	2 through 12	Adjustable	Solder lug	NS
002	2	2 through 6	Adjustable	Solder lug	NS
003	4	2 through 3	Adjustable	Solder lug	NS
004	1	2 through 12	Adjustable	Printed circuit	NS
005	2	2 through 6	Adjustable	Printed circuit	NS
006	4	2 through 3	Adjustable	Printed circuit	NS
007	1	2	Fixed	Solder lug	NS
008	1	3	Fixed	Solder lug	NS
009	1	4	Fixed	Solder lug	NS
010	1	5	Fixed	Solder lug	NS
011	1	6	Fixed	Solder lug	NS
012	1	7	Fixed	Solder lug	NS
013	1	8	Fixed	Solder lug	NS
014	1	9	Fixed	Solder lug	NS
015	1	10	Fixed	Solder lug	NS
016	1	11	Fixed	Solder lug	NS
017	1	12	Fixed	Solder lug	NS
018	2	2	Fixed	Solder lug	NS
019	2	3	Fixed	Solder lug	NS
020	2	4	Fixed	Solder lug	NS
021	2	5	Fixed	Solder lug	NS
022	2	6	Fixed	Solder lug	NS
023	4	2	Fixed	Solder lug	NS
024	4	3	Fixed	Solder lug	NS

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TABLE III. Switching characteristics and PIN's for type F construction. -
Continued.

PIN M3786/35-	Number of poles	Number of positions per pole	Type of stops	Termination	Switching Characteristics (S or NS)
025	1	2	Fixed	Printed circuit	NS
026	1	3	Fixed	Printed circuit	NS
027	1	4	Fixed	Printed circuit	NS
028	1	5	Fixed	Printed circuit	NS
029	1	6	Fixed	Printed circuit	NS
030	1	7	Fixed	Printed circuit	NS
031	1	8	Fixed	Printed circuit	NS
032	1	9	Fixed	Printed circuit	NS
033	1	10	Fixed	Printed circuit	NS
034	1	11	Fixed	Printed circuit	NS
035	1	12	Fixed	Printed circuit	NS
036	2	2	Fixed	Printed circuit	NS
037	2	3	Fixed	Printed circuit	NS
038	2	4	Fixed	Printed circuit	NS
039	2	5	Fixed	Printed circuit	NS
040	2	6	Fixed	Printed circuit	NS
041	4	2	Fixed	Printed circuit	NS
042	4	3	Fixed	Printed circuit	NS
043	1	2	Fixed	Solder lug	S
044	1	3	Fixed	Solder lug	S
045	1	4	Fixed	Solder lug	S
046	1	5	Fixed	Solder lug	S
047	1	6	Fixed	Solder lug	S
048	1	7	Fixed	Solder lug	S
049	1	8	Fixed	Solder lug	S
050	1	9	Fixed	Solder lug	S
051	1	10	Fixed	Solder lug	S
052	1	11	Fixed	Solder lug	S
053	1	12	Fixed	Solder lug	S
054	2	2	Fixed	Solder lug	S
055	2	3	Fixed	Solder lug	S
056	2	4	Fixed	Solder lug	S
057	2	5	Fixed	Solder lug	S
058	2	6	Fixed	Solder lug	S
059	4	2	Fixed	Solder lug	S
060	4	3	Fixed	Solder lug	S
061	1	2	Fixed	Printed circuit	S
062	1	3	Fixed	Printed circuit	S
063	1	4	Fixed	Printed circuit	S
064	1	5	Fixed	Printed circuit	S
065	1	6	Fixed	Printed circuit	S
066	1	7	Fixed	Printed circuit	S
067	1	8	Fixed	Printed circuit	S
068	1	9	Fixed	Printed circuit	S
069	1	10	Fixed	Printed circuit	S
070	1	11	Fixed	Printed circuit	S
071	1	12	Fixed	Printed circuit	S

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TABLE III. Switching characteristics and PIN's for type F construction. -
Continued.

PIN M3786/35-	Number of poles	Number of positions per pole	Type of stops	Termination	Switching Characteristics (S or NS)
072	2	2	Fixed	Printed circuit	S
073	2	3	Fixed	Printed circuit	S
074	2	4	Fixed	Printed circuit	S
075	2	5	Fixed	Printed circuit	S
076	2	6	Fixed	Printed circuit	S
077	4	2	Fixed	Printed circuit	S
078	4	3	Fixed	Printed circuit	S
079 <u>1/</u>	1	12	None	Solder lug	NS
080 <u>1/</u>	1	12	None	Printed circuit	NS
081 <u>1/</u>	1	12	None	Solder lug	S
082 <u>1/</u>	1	12	None	Printed circuit	S
083	3	2	Fixed	Solder lug	NS
084	3	3	Fixed	Solder lug	NS
085	3	4	Fixed	Solder lug	NS
086	6	2	Fixed	Solder lug	NS
087	3	2	Fixed	Printed circuit	NS
088	3	3	Fixed	Printed circuit	NS
089	3	4	Fixed	Printed circuit	NS
090	6	2	Fixed	Printed circuit	NS
091	3	2	Fixed	Solder lug	S
092	3	3	Fixed	Solder lug	S
093	3	4	Fixed	Solder lug	S
094	6	2	Fixed	Solder lug	S
095	3	2	Fixed	Printed circuit	S
096	3	3	Fixed	Printed circuit	S
097	3	4	Fixed	Printed circuit	S
098	6	2	Fixed	Printed circuit	S

1/ Continuous rotation.

TABLE IV. Switching characteristics.

Code letter	Switching characteristics	Type of stops	Shaft Type
A	Nonshorting	Fixed	Flatted
B	Shorting	Adjustable	Flatted
C	Nonshorting	Adjustable	Flatted
D	Shorting	Fixed	Flatted
E	Nonshorting	Fixed	Slotted
F	Shorting	Adjustable	Slotted
G	Nonshorting	Adjustable	Slotted
H	Shorting	Fixed	Slotted

TABLE V. Code letter for type construction, low level capability, shaft grounding, and type of termination. 1/

Code letter	Type construction	PC terminals	Solder lug terminals	Type termination
A	J	Yes	No	Printed circuit
B	K	Yes	No	Printed circuit
C	J	No	Yes	Solder lug
D	K	No	Yes	Solder lug
E	J	Yes	No	Printed circuit
F	J	Yes	No	Solder lug
G	J	Yes	Yes	Printed circuit
H	J	Yes	Yes	Solder lug
J	J	No	Yes	Printed circuit
K	J	No	Yes	Solder lug
L	K	Yes	No	Printed circuit
M	K	Yes	No	Solder lug
N	K	Yes	Yes	Printed circuit
P	K	Yes	Yes	Solder lug
R	K	No	Yes	Printed circuit
T	K	No	Yes	Solder lug

1/ Applicable to J and K constructions only.

TABLE VI. Code letter for combination of angle of throw, poles per deck, and number of positions per pole.

Code letter	Angle of throw	Poles per deck	Number of pos	Code letter	Angle of throw	Poles per deck	Number of pos
AA	30	1	2	AR	30	2	4
AB	30	1	3	AT	30	2	5
AC	30	1	4	AV	30	2	6
AD	30	1	5	AW	30	3	2
AE	30	1	6	AY	30	3	3
AF	30	1	7	BA	30	3	4
AG	30	1	8	BB	30	4	2
AH	30	1	9	BC	30	4	3
AJ	30	1	10	BD	30	6	2
AK	30	1	11	BE	30	1	Adjustable
AL	30	1	12	BF	30	2	Adjustable
AM	30	1	12 <u>1/</u>	BG	30	3	Adjustable
AN	30	2	2	BH	30	4	Adjustable
AP	30	2	3				

1/ Continuous rotation.

CONCLUDING MATERIAL

Custodians:

Army - CR
 Navy - EC
 Air Force - 11
 DLA - CC

Preparing activity:
 DLA - CC

(Project 5930-1764-02)

Review activities:

Army - AR, AT, AV, CR4, MI, SM
 Navy - AS, CG, MC, OS
 Air Force - 19